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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/625,071	07/25/2000	Shahram Mostafazadeh	NS-3877-2D US	7795

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EXAMINER

CLARK, SHEILA V

ART UNIT

PAPER NUMBER

2815

DATE MAILED: 12/11/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/625,071

Applicant(s)

Mostafazadeh et al

Examiner

Sheila V. Clark

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Jul 25, 2002
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-13, 15-34, 36, and 38-44 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-13, 15-34, 36, and 38-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other:

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The final rejection rendered 7-25-2002 has been rescinded to present the following office action

The amendment filed 4-26-2002 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: This amendment to the disclosure that deletes and replaces certain portions of the disclosure. This amendment attempts to remove Figs 1a, 1b, and 1c as prior art, rearrange and recite information the specification related to prior art as the applicant invention as well as added new descriptive details and phraseology. Applicant also appears to attempt to integrate features relative to ties bars that do not appear to be mentioned or labeled in the drawings of the original disclosures. No discussion relative to tie bars appears to be mentioned in the original disclosure. The original disclosure established Figure 1a, 1b, 1c and 1d and the description contained on pages 1-4 of the instant specification as prior art. This application is also a divisional of 09/054, 422 which are supposed to contain the same original disclosure whereby figure 1a, 1b, 1c and 1d are again established as prior art.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claims 11, 13, 18, 26, 34, 36, 38 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to

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reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

There appears to be nothing in the original disclosure that discusses a formation of an array, matrix, two dimensional array of components, rectangular footprint perpendicular to a bottom surface, nor the formation of sharp corners recited in these claims as recited in the amendments filed 10-21-2002 and 9-4-2001 and 10-9-200.

There also appears to be no discussion in the original disclosure relative to tie bars nor a matrix of tie bars in rows and columns as recited in claims 18 that appeared to be introduced in the amendment filed 10-11-2001.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the ties bars and features related thereto must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11-12, 18-21, 22-24, 25, 26-29, 30, 31-33, 34, 38-44 are rejected under 35

U.S.C. 103(a) as being unpatentable over Applicant's prior art figures 1a- 1d and the Admitted prior art in the original disclosure on pages 1-3.

Applicant's prior art figures show and the admitted prior art in the original disclosure teaches a lead frame panel 110 having an array of integrated circuit packages 190 having chip sitting on a die attach pad, leads 120 are shown formed around said pad and said leads formed coplanar with the lower surface of said die attach pad is shown in figure 1C. Figure 1C also shows a plurality of bond wires 140 coupled to said lead and plastic encapsulation 160 is also shown exposing a lower surface of said pad and leads solder balls 150 are also shown.

Applicant's prior art fails to teach specific use of a cap but the encapsulated surface structure is disclosed to be formed over all said chips 130 and is disclosed as characteristic of a cap structure. As it is disclosed as having the characteristics of a cap the said encapsulated surface structure of the applicant's prior art is deemed to obvious a cap recited in the claims.

Page 2 of the admitted prior art also teaches that it is well known to use of tape such as tape automated bonding or printed substrate backing adhered to the bottom surface of the lead frame panel to provide greater rigidity.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 13, 15, 16, 17, 21, 25, 30, 36, 38-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's prior art figures 1a -1c and the Admitted prior art in the original disclosure on pages 1-3 in view of Lin et al (5,200,362 and 5,273,938)

Applicant's prior art disclosure teaches substantially all the features of the claims as taught above except for the use of "removable" adhesive pad. Lin et al (5,200, 362) shows an integrated circuit package having a lead frame comprising a die attach pad 13, leads 13 positioned around said pad and the outer surfaces of said leads are shown coplanar with the lower surface of said pad. Bond wires 18 and encapsulation 22 are also shown and wherein said encapsulation is shown exposing the lower surface of pad and leads 13. Removable adhesive pad 12 (col. 3 line 44, peeling) is also shown. Figure 9 shows the use of a plurality of packages and metal panel 50 is shown. Figures 2 and 4 show singulated devices. Lin et al (5, 272, 938) teaches a similarly.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the tape of applicant's prior art removable. The ordinary artisan would have been motivated to modify prior art figures 1-2 for the purposes of providing greater rigidity to the lead frame surface, flash prevention, to increase solder joint reliability and to enhance the adherence of the resin material to the lead frame pattern.

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The claims such contain method of making characteristics (i.e fabricated simultaneously, prior to singulation, fabricated, sawing) given no patentable weight in determining the final device structure.

Note that a "product by process" claim is directed to the product per se, no matter how actually made, In re Hiraio 190 USPQ 15 at 17(footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Fessman, 180 USPQ 324; In re Avery, 186 USPQ 161 and In re Marosi et al, 218 USPQ 289, all of which make it clear that it is the patentability of the final product per se which must be determined in "product by process" claims, and not the patentability of the process, and that, as here, an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not.

Claims 13, 15, 16, 17, 21, 25, 30, 36, 38-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's prior art figures 1a -1c and the Admitted prior art in the original disclosure on pages 1-3 in view of Hur et al.

Hur et al shows use of removable tape 11 attached to the bottom surfaces of lead frames 3. Col. 3, lines 49-50 teach the removable features. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the tape of applicant's prior art removable. The ordinary artisan would have been motivated to modify prior art figures 1-2 for the purposes of providing greater rigidity to the lead frame surface, flash prevention, to increase solder joint reliability and to enhance the adherence of the resin material to the lead frame pattern.

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The claims such contain method of making characteristics (i.e fabricated simultaneously, prior to singulation, fabricated, sawing) given no patentable weight in determining the final device structure.

Note that a "product by process" claim is directed to the product per se, no matter how actually made, In re Hirao 190 USPQ 15 at 17(footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Fessman, 180 USPQ 324; In re Avery, 186 USPQ 161 and In re Marosi et al, 218 USPQ 289, all of which make it clear that it is the patentability of the final product per se which must be determined in "product by process" claims, and not the patentability of the process, and that, as here, an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not.

Claims 11-13, 15-44 are rejected.

Applicant's arguments filed 10-21-2002 have been fully considered but they are not persuasive. The references are deemed to teach the features of the invention as they are recited. As discussed with Mr. Beyer on 10-16-2002 once information has been described in the original disclosure as prior art it cannot be undisclosed as prior art. An application in the continuing chain also has already been established as having the same original disclosure. The admitted prior art in the disclosure is deemed to teach most of the features recited in the claims including use of tape or backing on the package lead surface. Molding, cutting and singulating packages is also taught. The original disclosure also fails to provide any details relative tie bar features though the applicant has attempted to enhance the claims with these features. The only feature of the instant

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invention that appears to be not disclosed as part of the applicant's prior art would be the "removability" of the tape which appears to be well known as Lin (5, 200,362 and 5, 273, 038) and Hur all show.

Further the use of copper foil fails to exclude the use of lead frames in the invention of lin et al. whereby lead frames are not limited to certain thicknesses of metal materials Further Lin et al often recites only a "pattern of conductive traces" which includes the lead frame pattern clearly shown in figure 9. Further col. 2, line 53-54 teaches another embodiment that used a sheet of metal that fails to be limited to the foil argued by the applicant. Applicant further argues the Lin et al fail to show a cap covering a 2-D array of device areas. The original disclosure fails to discuss a 2-D array of devices but if the applicant attempts to describe the prior art features of the instant device in figure 1 an encapsulating cap is clearly shown as well as a plurality of device structure. An encapsulating cap and a plurality of structures are also clearly shown by Lin ('562" in for example figure 5 and Lin et al ('938) in such figures as figures 1 and 10. Applicant's arguments relative to perpendicular walls and sharp corners have also not been established in the original disclosure.

Applicant is asked to show in future amendments and arguments where there is basis in the disclosure for amended features recited in the claims and added to the specification.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner S.V. Clark whose telephone number is (703) 308-4924.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee , can be reached on (703) 308-1690. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7722 or 7724.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

December 9, 2002



SHEILA V. CLARK
PRIMARY EXAMINER